

Message

From: Corey Shircliff [Corey.Shircliff@la.gov]
Sent: 1/24/2023 5:56:59 PM
To: Johnson, Ken-E [Johnson.Ken-E@epa.gov]
CC: Katie Robinson [Katie.Robinson@LA.GOV]; Matthew Aranyosi [Matthew.Aranyosi@LA.GOV]
Subject: RE: Confining Zone Class II Question

Hey Ken, just following up on this. Would you and your team have time to chat later this week? Friday is wide open for us.

Corey

From: Corey Shircliff
Sent: Thursday, January 19, 2023 1:02 PM
To: Johnson, Ken-E <Johnson.Ken-E@epa.gov>
Cc: Katie Robinson <Katie.Robinson@LA.GOV>; Matthew Aranyosi <Matthew.Aranyosi@LA.GOV>
Subject: Confining Zone Class II Question

Ken,

Pinnergy has submitted the following request regarding their commercial injection well in DeSoto Parish. You may remember that this well had previously been assigned a pressure that was higher than the formation fracture pressure but lower than the fracture pressure of the confining shale. Upon finding out that the log and calculation (from a rock properties log) were not truly representative of the fracture pressure of the shale, we rolled back the policy allowing this increased pressure. Pinnergy has searched for core data in their confining shale in an attempt to measure the fracture pressure. They have been unable to locate usable core. Pinnergy is now proposing utilizing myriad above-zone and in-zone production wells to monitor the pressure front and demonstrate that injected brine has not left the zone (see email below).

Some questions:

- Has EPA allowed other operators to receive a higher-than-injection-formation pressure even if they do not have test data?
- Do you know of other methods to calculate the fracture gradient of a shale?
- If they request a waiver to our 90% of formation fracture pressure rule, do you know of any other evidence we could use that EPA would be comfortable with to ensure that the confining shale is not being fractured?

Happy to have a chat about this on Teams if you'd prefer.

Email excerpt from Pinnergy:

Pinnergy Desoto Site:

We have identified up to five (5) confining shale layers (each of which are at least 11 continuous feet thick) present between the top of the permitted injection zone at 3177' and the Rodessa formation at 4754'. These shales were correlated in the wells throughout the AOR. We then searched available core repositories (UT BEG – Houston and Austin, LSU, and SFA) for any core data within ~100 miles of the Desoto SWD that would include any of these shale layers; however, all efforts to find cores of these shales have been unsuccessful. Unless LDNR can propose an alternative, we do not have many options remaining to obtain actual core data.

We have, however, identified 25 active or shut-in production wells perforated in reservoirs above the permitted injection zone within a 5-mile AOR. See attached. These wells also have reported shut-in tubing pressure data from the time period Pinnergy has operated the Desoto SWD #1 (2012 to present); the data show either no change in tubing pressure or a decrease in tubing pressure. Much like the above-zone and lateral monitoring wells required for Class VI well operations, these above-zone wells, in combination with the lateral Rodessa production wells we have previously presented/discussed, could be used to monitor the waste pressure front, ensure the injected waste stays within the injection interval, and ultimately ensure the USDW is protected.

Thanks Ken,

Corey Shircliff, PG

Manager – Geology Section

Injection and Mining Division

Louisiana Office of Conservation

O: 225-342-5586

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